Color Evolution in Moderate-Redshift Galaxy Clusters

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We have obtained optical–IR imaging of ~40 galaxy clusters in the range $0.02 < z < 0.9$. Our sample traces cluster galaxy properties over nearly half a Hubble time. The wide–field imaging typically reaches 2 mag below K_*, yielding ~50–100 galaxies per cluster. We are using this dataset in conjunction with archival WFPC2 imaging to investigate color evolution of the elliptical galaxy population. Analysis of a subset of the clusters has been carried out using IR–selected galaxy samples. After field–correction, we calculated median optical–IR colors of the morphologically–identified ellipticals. The colors are then zeropointed to the Coma cluster using our own $UBVRIzJHK$ photometry of an IR–selected sample. The resulting observed–frame color differences represent change from the present epoch, largely independent of model–dependent k–corrections. We find a bluing trend with redshift in the optical–IR colors, in general agreement with the standard passive evolution scenario in which ellipticals are a coeval population formed at $z > 5$.

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